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from Harvard University, he has
nearly three decades of experience in
several business fields. He once joked

bridge in 1999, he ran Union Pacific
Resources Group, a Fort Worth,
Texas-based oil and gas company.

sulting services that help companies
See MESSMAN, Page E-2

Mining FROM THE Bottom Up



Photo by Paul Fraughton/The Salt Lake Tribune

Bruce Farmer,
president and
CEO of
Kennecott Utah
Copper, wants to
take the mining
operation
underground in
the future.

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If Kennecott Utah Copper is successful in converting its Bingham Canyon Mine to an underground operation, it plans to use a mining method known as "block caving."

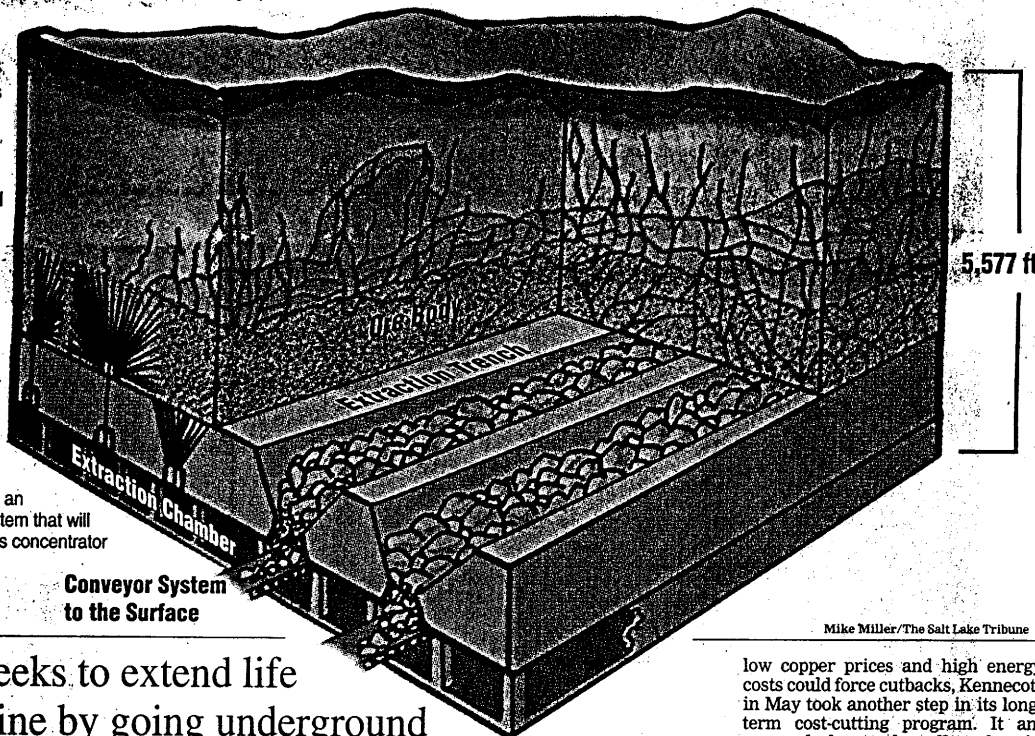
How It Works:

■ Miners will carve out huge extraction chambers beneath the ore bodies.

■ Using explosives, they will blast extraction trenches or funnel-shaped extraction points in the rock above.

■ The copper-bearing ore will fall from the force of gravity and be crushed under its own weight, tumbling through the extraction points into the chamber below. It will then be readied for loading and transport to the surface.

■ Kennecott plans to use an underground conveyor system that will carry the ore 3.5 miles to its concentrator on the surface.



Conveyor System
to the Surface

Mike Miller/The Salt Lake Tribune

Kennecott seeks to extend life of copper mine by going underground

BY STEVEN OBERBECK
THE SALT LAKE TRIBUNE

Kennecott Utah Copper's long-term future — if there is one — lies underground. After more than 90 years of open-pit mining at its Bingham Canyon site on the eastern slopes of the Oquirrh Mountains, Kennecott is slowly running out of easy-to-get copper ore. It will be gone in little more than a decade.

The options: shut down or go underground.

Within two years, Utah's copper giant hopes to begin long-term planning to change its ore extraction method from open pit to underground mining, said Bruce Farmer, president and chief executive officer of Kennecott Utah Copper.

"The big challenge is convincing our owner [Kennecott's parent

company Rio Tinto] to fund the \$1 billion in upfront development costs," Farmer said. "It is a steep investment for any company to contemplate."

More than 30 million years ago, hot magma from deep within the earth's crust welled up beneath the present site of the Bingham Canyon Mine and deposited copper ore in the shape of a huge tooth.

Beginning in 1906 with the start of open-pit mining on the site, miners slowly chipped away at the crown of the molar. By 2012, only the copper-rich roots of the ore body will remain.

Kennecott geologists estimate the roots of the deposit contain a combined 269 million tons of copper ore. The company may be able to mine the ore profitably using a technique known as "block caving," Farmer said.

"You go in beneath the ore body

and undercut it, letting it cave in. Then you take out the crushed rock on conveyor belts," Farmer said.

Underground mining will represent a massive change in the way the company works. But right now, Farmer said, Kennecott's cost structure probably will not support such an operation.

"Today, I would have to say [underground mining] is not an option," he said.

The price of copper at about 72 cents per pound in real terms is the lowest since the Civil War.

Kennecott produces about 320,000 tons of copper a year. Last year, it earned only a 3.2 percent return, or \$100 million from \$3.2 billion invested. "We are going to have to demonstrate [to Rio Tinto] we can do better than that," Farmer said. "We must get our costs down."

After warning in February that

low copper prices and high energy costs could force cutbacks, Kennecott in May took another step in its long-term cost-cutting program. It announced plans to lay off 205 hourly and 30 salaried workers at its north concentrator in Magna. The cutback represents about 10 percent of Kennecott's 2,300 employees and will begin at the end of July.

Future employment levels at Kennecott, while far short of the 8,000 workers the company employed in the early 1970s, should remain relatively constant although some jobs may be lost once underground mining begins. "If we convert to a block caving method, we'll need slightly fewer workers although it will not be anything dramatic," Kennecott spokesman Louis Cononelos said.

There are few signs of any major increase in the price of copper on the horizon, said John Gross, publisher of *The Copper Journal*.

Copper sheets, known as cathodes, are piling up in warehouses around the country. Inventories at

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S L Tribune

July 1, 2001

Kennecott Looks to The Future

Continued from E-1

Corp., the country's largest copper producer, last month said it would eliminate about 80 jobs at one of its mines in New Mexico and could eliminate another 1,065 jobs in the state. And a planned expansion of the Collahuasi copper mine in Chile recently was put on hold until at least the end of the year.

Warehouses monitored by the Comex division of the New York Mercantile Exchange more than doubled so far this year to a record 160,648 tons. Inventories stood at 65,583 tons at the start of the year.

"Production is still running a little stronger than anticipated," Gross said. However, Phelps Dodge

And with metal prices historically starting to recover around a year after a major stock market sell-off, Guley said the price of copper could begin to turn around sometime next spring provided the country doesn't slip into a full-blown recession.

Farmer, however, says Kennecott cannot count on a recovery in the price of copper to boost its long-term fortunes. "My feeling is the metal price isn't going to save us. We have to concentrate on what we can control — our costs."

And time is running short. If Kennecott is to mine underground, it will take about five years — from 2007 to 2012

— to design and construct the mine and "prove out" the ore body. Engineering studies also will take a couple of years and will have to begin as early as 2005.

"And that brings us back to 2002 or 2003 when we have to be ready to say, 'Hey, this is reasonable. We should go ahead with this,'" Farmer said.

Even though a number of mines around the world are now trimming their payrolls or halting growth plans, Guley said historically the copper mining industry is "fairly famous" for making investments in mines when the price of the metal is weak.

"While I cannot talk about

this company [Rio Tinto], counter-cyclical investing has paid off for a lot of copper mining companies over the years," he said.

Although Farmer expects to retire by 2012, he said positioning Kennecott to begin underground mining is one of the big remaining tasks before him.

"I'm a mine operator, not a mortician," Farmer said. "I've heard it said that Kennecott has fed more families through its wages and educated more people through the taxes it's paid than any other business in the state. And I'm not going to be the one who says that should stop."

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